Odonatologica 16(3): 225-238 *September 1, 1987*

ON THE TYPE SPECIMENS OF SOME NEOTROPICAL MEGAPODAGRIONIDAE, WITH A DESCRIPTION OF *HETERAGRION PEMON* SPEC. NOV. AND *OXYSTIGMA CAERULANS* SPEC. NOV. FROM VENEZUELA (ZYGOPTERA)

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Received July 1, 1986 / Revised and Accepted April 8, 1987

The type specimens of *Dimeragrion secundum* Needham, *Heteragrion romani* Sjöstedt, *H. silvarum* Sjöstedt and *H. speciosum* Sjöstedt are discussed and figured. It is suggested, that *H. romani* Sjöstedt is a synonym of *H. icterops* Selys, and *H. speciosum* Sjöstedt a synonym of *H. flavidorsum* Calvert. — *Heteragrion pemon* sp. n. (holotype male: Venezuela, Bolívar, Guayaraca, Auyantepuy, 1020 m, 16-IV-1956; Facultad de Agronomía, Maracay) and *Oxystigma caerulans* sp. n. (holotype male: Venezuela, Bolívar, km 125, road El Dorado-Santa Elena de Uairén, 1280 m, 20-22-V-1985; Facultad de Agronomía, Maracay) are described and illustrated. Figures and a description of the ultimate instar male exuviae, associated with the latter species by supposition, are also presented.

INTRODUCTION

Any collecting trip to the Venezuelan south or east will invariably be rewarded by one or more unidentifiable species of the megapodagrionid family. Some of these species show later to be indeed undescribed, while the identity of others remains doubtful, either because the original description of similar taxa is vague or incomplete, or the figures of important structures and color patterns are inaccurate, sparse or entirely missing. In order to establish the identity of several Venezuelan megapodagrionids accumulated since 1956 by the late Dr J. Rácenis, and especially in the last few years, by myself, I tried to obtain for direct comparison the type specimens of Sjöstedt's three *Heteragrion* species and Needham's *Dimeragrion secundum*. I had seen already the type of *Heteragrion icterops* Selys at an earlier occasion.

It is clear that taxonomic studies such as the one exposed here are possible only with the collaboration of museums or persons in possession of the type material required. Often a holder of type specimens must decide whether his responsibility is just to protect the types from damage and total loss, or to make them accessible for study, even at the risk of mailing. It is, however, the latter decision alone, that allows progress in taxonomic matters. Therefore, any collaboration by a holder of type specimens is by itself a contribution to science.

DIMERAGRION SECUNDUM NEEDHAM, 1933

Figures 1-7, 45

Material examined. — 2 ♂, Mt. Duida, Venezuela, 16-XII-1928 (**holotype**), 8-XII-1928 (**paratype**).

Male (holotype). — The specimen is totally broken and incomplete. Only a few pieces are well-preserved, viz. head, prothorax, pterothorax and right fore wing. There are also fragments of two legs and part of the abdomen. Abdominal segments 1-3 remain attached to the thorax; the distal segments are crushed, the right superior anal appendage is missing, while the left inferior one has its tip broken off.

The following labels are enclosed in the envelope with the specimen: two printed, red labels "Holotype"; two small, printed, reddish labels "Ac. 29500" and "Tate, No.", and "Mt. Duida, Venezuela" with the (handwritten) note "XII.16.1928". One red label "Det. by J.G. Needham" (printed) and "Dimeragrion secundum ♂, holotype" (handwritten). One large red label "Racenis det." (printed) and "Duidagrion secundum ♂ 1961, No. 3426 E" (handwritten).

In completion to the original description by NEEDHAM (1933) one may add the following: frons high, but not very sharply angled; second joint of antenna scarcely longer than the first one; rear of head black. — Right fore wing petiolated until almost half the length of the quadrangle; there are no cubito-anal cross-veins besides CuA; 4 antenodal cells in the discoidal field. First antenodal space slightly shorter than third, second space approximately three fifths the length of the third one. There are 27 postnodal cross-veins (including one inserted between proximal side of pterostigma and costa). IR_2 originates at the twelfth postnodal, R_3 at the eighth, and IR_3 at the subnodus. R_4 branches off at roughly one cell length before the subnodus.

Measurements (mm). — Length of right fore wing 32; pterostigma, costal side 1, radial side, 1.7.

The paratype male is well preserved.

The labels enclosed in the envelope are white: one small label "Mt. Duida Venezuela" (printed) and "XII.8.1928" (handwritten); one small printed label "Ac. 29500" and "Tate No. 433"; one larger label "Det. by J.G. Needham" (printed) and "Dimeragrion secundum Ndm Type" (handwritten); one small printed label "Am. Mus. Nat. Hist. Dept. Invert. Zool. No.".

This male differs from the holotype as follows: The black T-spot ends at the frontal edge and is absent from the anterior surface of the frons, but reappears at the fronto-clypeal suture. — Anterior and posterior lobe of prothorax much darker, the hind lobe especially so at the lateral angles and along the free margin; there is no incision in the middle of the posterior lobe. Abdominal segments 8-10 (especially 9) dorsally pruinescent. — Tarsal claws with a strong tooth in the

apical third. Wings without accessory cubito-anal cross-veins (this feature as in the holotype); CuA as much proximal to the arculus as the latter is high (fore wing), or slightly more proximal (hind wing). Both fore wings with 4 discoidal anteriodal cells after the quadrangle, hind wings with only 3 such cells. Postnodals in fore wings 25 (26), in hind wings 22. There are two cell-rows distally of each pterostigma. IR_2 originates at the tenth (eleventh) postnodal in the fore wings, at the ninth in both hind wings; R_3 branches off at, or slightly after, the seventh postnodal in the anterior wings, at the sixth (seventh) in the posterior ones. IR_3 originates always at the subnodus, and R_4 one cell-length before.

Measurements (mm): — Total length (inclusive anal appendages) 49.5; abdomen (incl. app.) 41; fore wing 29.5; hind wing 28; pterostigma, front wing, costal side 1, radial side 1.8.

Female and larva are unknown.

Remarks. — The males are easily distinguishable from males of *Dimeragrion percubitale* Calvert by the color pattern of the head and the very differently shaped superior anal appendages.

HETERAGRION ROMANI SJÖSTEDT, 1918

Figures 8-12, 46

Material examined. — 1 ♂ (holotype), Manáus.

Male (holotype). — The specimen is fairly well preserved.

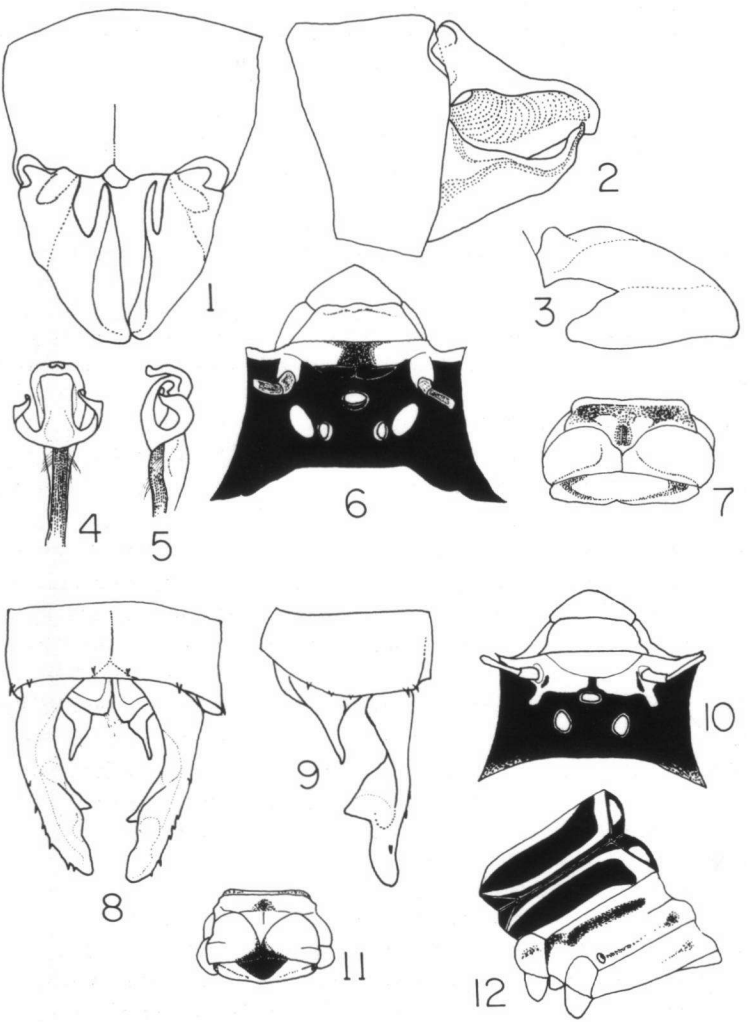
Attached to the pin are the following labels: one small, white, printed label "Manáos"; one similar printed label "Amazon" and "Roman"; one large white label "Heteragrion Romani n sp. ♂" (handwritten) and "Yngve Sjöstedt det" (printed); one large, green, printed label "Riksmuseum Stockholm".

SJÖSTEDT (1918) says that the rear of the head is dark. It is, however, still clearly more yellowish than the vertex. I think the darkening is a consequence of post-mortem changes. Similarly, the colors of the thorax are somewhat obscured and transparent. — The dorsum of the abdominal segment 8 after the yellow basal ring is clearly darker in its basal third than distally. Segments 9 and 10 are black dorsally, yellowish laterally, the boundary between these two colors is fairly clear-cut. Of the legs only the left hind femur with half of its tibia is preserved. The femur is yellowish, somewhat darker towards the tip; tibia of the same darkened color. — Fore wings with 15 (14), hind wings with 14 (12) postnodals. IR_2 originates at the eleventh postnodal (right fore wing), after the ninth (right hind wing); R_3 begins at the eighth postnodal (right fore wing), at the seventh (right hind wing); IR_3 originates in both the right fore and hind wing just before the sixth postnodal.

Measurements (mm). — Total length (excluding anal appendages) 36.5; abdomen (excl. app.) 30.5; anal appendages 1.2; hind wing 19 mm; maximum width hind wing 3.6; pterostigma, fore wing, costal side 0.9.

Female and larva are unknown.

Remarks. — The anal appendages of *H. romani* are similar to those of *H. simulatum* Williamson, but the color pattern of these two species is different. On the other hand, I could not find any convincing difference between *H. romani* and *H. icterops* Selys. I have illustrated the head, prothorax and penis of the holotype of *H. icterops* elsewhere (DE MARMELS, 1986). The



Figs 1-12. *Dimeragrion secundum* Needham: Figs 1-7: (1) anal appendages, paratype, dorsal view; — (2) same, left lateral view; — (3) right superior anal appendage, paratype, left dorso-internal view; — (4) penis, holotype, ventral view; — (5) same, right lateral view; — (6) head, holotype, dorsal view; — (7) prothorax, holotype, dorsal view. — *Heteragrion romani* Sjöstedt, holotype: Figs 8-12: (8) anal appendages, dorsal view; — (9) same, left lateral view; — (10) head, dorsal view; — (11) prothorax, dorsal view; — (12) pterothorax.

specimen lacks the superior anal appendages, which, in fact, have never been described, but I found almost complete coincidence in features such as color pattern of head, prothorax, pterothorax and abdomen, wing venation and size. The type of *H. icterops* is from Santarém on the Amazon, about

600 km east of Manáus, the place of origin of *H. romani*. — I am much inclined to consider *H. romani* Sjöstedt a synonym of *H. icterops* Selys, but more material from the mentioned localities should perhaps be compared before this conclusion can be definitive.

HETERAGRION SILVARUM SJÖSTEDT, 1918

Figures 13-19, 47-48

Material examined. — 1 ♂ **(holotype)**, 1 ♀ **(paratype)**, Manáus.

Male (holotype). — The specimen lacks the entire abdomen; the head is glued onto the prothorax.

It is accompanied by the following labels: one small, white, printed label "Manáos"; one similar printed label "Amazon" and "Roman"; one large, white label "Heteragrion silvarum n. sp. ♂" (handwritten) and "Yngve Sjöstedt det" (printed); one large green, printed label "Riksmuseum Stockholm".

Only the two basal segments of the right antenna are preserved; they are brownish orange, the second segment darker in its distal third, but again pale at its tip. Face and top of head brownish orange, a black occipital band is the only distinctive mark (Fig. 13); rear of head pale; frons not sharply angled. — Prothorax somewhat obscured by post mortem changes. The distinguishable markings are reproduced in Figure 14. Pterothorax brownish yellow; the mid-dorsal carina black, the dark thoracic stripes rather brown, not clear-cut against the pale areas (Fig. 15). Wings hyaline, venation and pterostigma brown. 3-5 cross-veins after the stigma in the costal space. Fore wings with 17 postnodals, hind wings with 15. IR_2 originates at (after) the eleventh postnodal in the fore wings, at the tenth (eleventh) in the hind wings; R_3 branches off at the eighth (ninth) postnodal in the fore wings, at the seventh (eighth) in the hind wings. IR_3 originates at the sixth postnodal in all but the left fore wing, where it does so at the seventh. The wings are petiolated exactly until CuA, which is located as much proximal to the arculus as the latter is high.

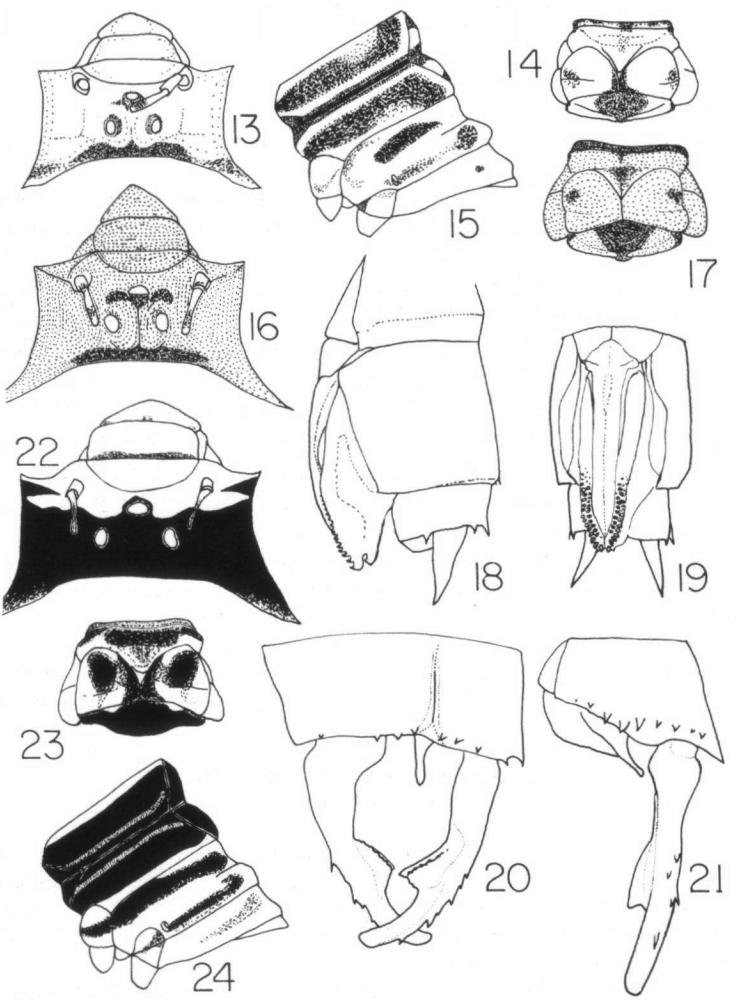
Measurements (mm). — Length of head with thorax 7; fore wing 22.5; hind wing 22; maximum width of hind wing 4; pterostigma, fore wing, costal side 0.9, radial side 1.5.

Female (paratype). — The type series includes two females, one of which has been examined by me. Although one can not know with certainty whether this female is conspecific with the holotype, I am inclined to consider it so. Some of its features are illustrated in Figures 16-19 and 48. The wings are hyaline, the tips slightly smoky. There are 16 (17) postnodals in the fore wings, 14 (16) in the hind wings. IR_3 originates at the sixth postnodals in all wings, R_3 at the eighth postnodal in three wings, at the seventh in the left hind wing. IR_2 at the eleventh postnodal in both fore wings, but between the ninth and the tenth in the left hind wing, and between the tenth and the eleventh in the right hind wing.

Measurements (mm). — Total length 39.5; abdomen 32.5; hind wing 24; maximum width of hind wing 5 mm; pterostigma, costal side, fore wing 1.

Remarks. — The male (holotype) of *H. silvarum* differs from males of *H. ictericum* Williamson in the color pattern of the thorax. The female (paratype) of *H. silvarum* has a longer ovipositor and

the denticulation of the valves is regular, while in *H. ictericum* there is a free space basally between the two rows of denticles (ventral view), and the ovipositor does not reach to the end of segment 10. — *H. silvarum* is much more similar to *H. melanurum* Williamson, but the latter has, in both sexes, a dark dash between each compound eye and the (also dark) base of the corresponding antenna.



Figs 13-24. *Heteragrion silvarum* Sjöstedt: Figs 13-19: (13) head, holotype, dorsal view; — (14) prothorax, holotype, dorsal view; — (15) pterothorax, holotype; — (16) head, female paratype, dorsal view; — (17) prothorax, female paratype, dorsal view; — (18) last abdominal segments with ovipositor, same specimen, left lateral view; — (19) same, ventral view. — *Heteragrion speciosum* Sjöstedt, holotype: Figs 20-24: (20) anal appendages, dorsal view; — (21) same, left lateral view; — (22) head, dorsal view; — (23) prothorax, dorsal view; — (24) pterothorax.

Geographical reasons, too, seem to exclude the identity of *H. silvarum* with *H. ictericum* or *H. melanurum*. The latter point is of some concern also for the separation of *H. silvarum* from *H. aurantiacum* Selys, a southern species unknown to me, which seems to be similar in coloration.

HETERAGRION SPECIOSUM SJÖSTEDT, 1918

Figures 20-24, 49

Material examined. — 1 ♂ **(holotype)**, Peru.

Male (holotype). — The specimen is complete, although the thorax is somewhat crushed and the abdomen partly flattened. The colors are well-preserved.

The following labels are hold by the pin: one small, white, printed label "Peru"; one large, white label "Heteragrion speciosum n sp. ♂" (handwritten) and "Yngve Sjöstedt det" (printed); one large, green, printed label "Riksmuseum Stockholm".

The specimen agrees prefectly in all points with the description and figures given by CALVERT (1909) and WILLIAMSON (1919) of *Heteragrion flavidorsum* Calvert (!). The following observations may be added: Clypeus with an ill-defined dark basal line. However, this line may be a post mortem artifact. — The black dorsal surface of abdominal segments 9 and 10 contrast sharply with the bright orange yellow lateral parts. — All four wings have 18 postnodal cross-veins. The following observations refer to the right wing pair only; IR_2 originates at the tenth postnodal, R_3 at the eighth in the fore wing, at the seventh in the hind wing; IR_3 begins just after the fifth postnodal in both wings.

Measurements (mm). — Total length (excluding anal appendages) 49; abdomen (excl. app.) 41.5; anal appendages 1.2; hind wing 25; maximum width of hind wing 3.8; pterostigma, costal side, fore wing 0.9.

Female and Larva are unknown.

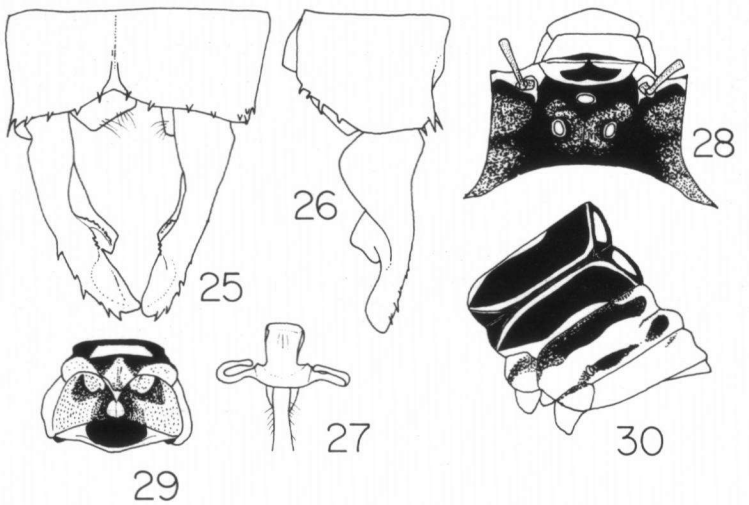
Remarks — I have not seen the type of *H. flavidorsum*, but I have no doubts but that *H. speciosum* Sjöstedt is a synonym of *H. flavidorsum* Calvert. The latter was described from Bolivia (Coroico).

HETERAGRION PEMON SPEC. NOV.

Figures 25-30, 50

Material examined. — 1 ♂ **(holotype)**, Venezuela, Bolívar, Guayaraca, Auyantepuy, 1020 m, 16-IV-1956, J. Rácenis leg., 1 ♂ **(paratype)**, Venezuela, Bolívar, Arabadankén, Gran Sabana, between Santa Elena de Uairén and Mt. Roraima, 1090 m, 12-X-1966, J.B. Bechyně & E. Osuna leg. — Both specimens are kept at the Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay.

Male (holotype). — Rear of head pale; top of head mostly dark brown to black; antennae yellow brown, face yellow (Fig. 28); the black basal line of the fronto-clypeal suture enlarged in the middle and connected with the black transverse dash on the top of front by a kind of T-stem across the vertical surface of the front. — Prothorax and pterothorax yellow with black markings as in Figures 29-30. Legs yellowish brown, the femora with two broad dark cross bands. Wings hyaline; pterostigma rusty, covering 2 cells, or slightly more.



Figs 25-30. *Heteragrion pemon* sp. n.: (25) anal appendages, holotype, dorsal view; — (26) same, left lateral view; — (27) penis, paratype, ventral view; — (28) head, holotype, dorsal view; — (29) prothorax, holotype, dorsal view; — (30) pterothorax, holotype.

Arculus slightly distal to the second antenodal. CuA cross-vein as much proximal to the arculus as this latter is high (fore wing), or more proximal (hind wing); two antenodal cells in the discoidal field. 17 (19) postnodals in the fore wings, 16 in both hind wings. IR_2 originates after the ninth (at the tenth) postnodal in the fore wings, after the eighth in both hind wings; R_3 branches off at the seventh (before the eighth) postnodal in the fore wings, at the sixth in the hind wings; IR_3 begins before the fifth (sixth) postnodal in the fore wings, before the fourth (between fourth and fifth) in the hind wings. R_4 originates at the subnodus (left hind wing) or slightly distally. — Abdomen chiefly dark brown. Yellow are the lateral parts of segments 1 and 2, a middorsal line on segment 3, and a complete basal ring on segments 3-7; this ring is much enlarged laterally. Segments 3-6 show a broad, yellow subapical ring and a dark brown apical ring, which is as broad as the former. Segment 7 is dorsally dark after the paler basal ring, segment 8 yellow dorsally, except for a triangular, brown basal dash; segment 9 and 10 dorsally dark brown to black, laterally yellow. Superior anal appendages dark brown, shaped as in Figures 25-26; inferior appendages reduced.

Measurements (mm). — Total length (excluding anal appendages) 45.5; abdomen (excl. app.) 38; anal appendages 1.2; hind wing 24.5; maximum width of hind wing 4.5; pterostigma, costal side, fore wing 1, radial side 1.5.

In the paratype male the yellow basal rings of segment 3-7 are unconspicuous dorsally. This male has 20 (18) postnodals in the fore wings, 18 (17) in the hind wings. IR_2 originates slightly before the thirteenth (eleventh) postnodal in the fore

wings, at the tenth in the hind wings. R_3 branches off at the ninth (eighth) postnodal in the fore wings, at the seventh in both hind wings. IR_3 begins at the fifth postnodal in three wings, at the fourth in the right hind wing. There are no spinules on the internal margin of the dorsal surface of the superior anal appendages at the level of the distal end of the internal branch. Penis as in Figure 27.

Measurements (mm). — Total length (excluding anal appendages) 46.5; abdomen (excl. app.) 38.5; hind wing 25.5; maximum width of hind wing 5; pterostigma fore wing, costal side 1, radial side 1.5.

Female and larva are unknown.

Remarks. — This species keys out to *H. ictericum* in WILLIAMSON (1919), but shows some similarities also with *H. consors* Hagen. *Heteragrion pemon* sp. n. is probably restricted to the "Gran Sabana", a highland plateau on which the famous "Tepuis" (table mountains) stand. This is the native land of the Pemón Indians.

OXYSTIGMA CAERULANS SPEC. NOV.

Figures 31-44, 51

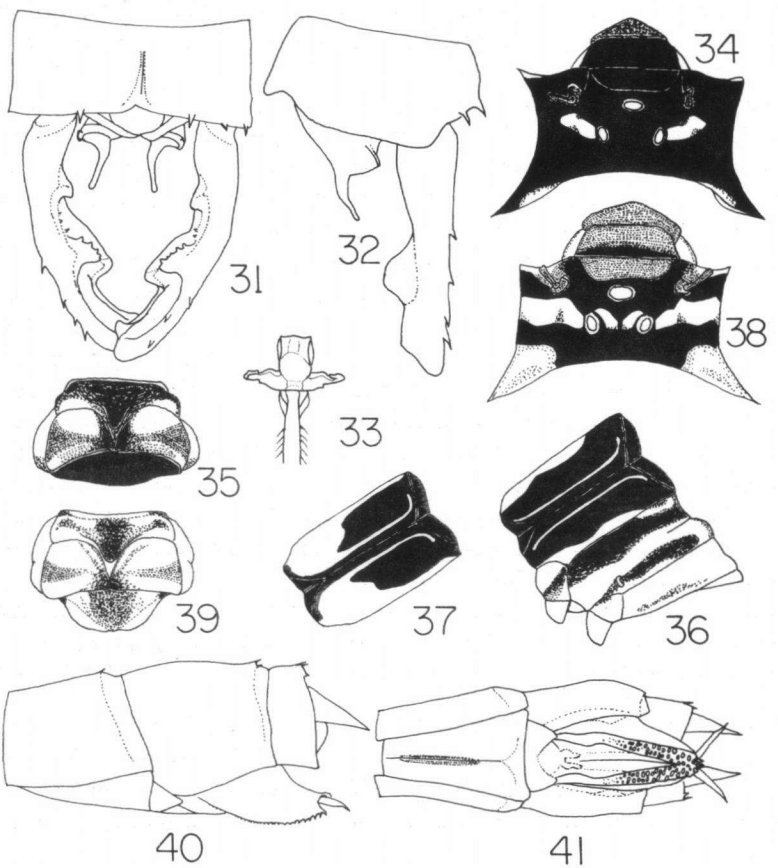
Material examined. — 1 ♂ **(holotype)**, Venezuela, Bolivar, km 125, road El Dorado-Santa Elena de Uairén, 1280 m, 20-22-V-1985, J. De Marmels leg.; — 17 ♂, 3 ♀ (including **allotype** and **paratypes**). The ultimate instar exuviae of 1 ♂ were also studied. All specimens with same dates as holotype, except 1 ♂, which is from km 114 (1400 m?).

Male (holotype). — Labium and rear of head pale; genae and base of mandibles probably also pale in life. Labrum, clypeus, frons, antennae and top of head dark brown to black; a pale stripe between each lateral ocellus and the base of the corresponding antenna. — Thorax dark brown to black, varied with sky blue (Figs 35-36). Legs brown, tooth of tarsal claws near tip of claw. Wings strongly smoky; pterostigma dark brown, covering three and a half cells; 8-10 cross-veins following the pterostigma distally. CuA cross-vein at one fourth the length between first and second antenodal. Quadrangle long, its distal anal angle at the level of the nodus. 23 (24) postnodals in the fore wings, 18 (19) in the hind wings. IR_2 originates at the thirteenth (fourteenth) postnodal in the fore wings, at the eleventh in both hind wings. R_3 branches off at the eleventh postnodal in the fore wings, after the eighth in the hind wings. IR_3 begins after the sixth postnodal in both fore wings, and after the fifth in both hind wings. In all wings, R_4 branches off at the subnodus. — Abdominal segment 1 is blue with a small, dark dorsal spot; segment 2 laterally blue to pale creamy, dorsally black with a blue median line over the basal half of the segment. Segment 3-7 black with an ill-defined brown basal ring. Laterally, segments 3-6 are brown in the distal half before the broad, black distal band. Segments 7-10 are rusty laterally, blackish dorsally. Abdomen ventrally and anal appendages pruinescent. Shape of the anal appendages as in Figures 31-32.

Measurements (mm). — Total length (excluding anal appendages) 49; abdomen (excl. app.) 40.5; anal appendages 1.4; hind wing 27; pterostigma, costal side, front wing 0.8; radial side 2.

Among the paratype males there are 7 specimens with more blue on the

mesepisterna. The extreme is shown in Figure 37. Whether the extension of black is increasing with age, or is the result of individual variability is not easy to decide, as all specimens have more or less smoky wings, normally an indication of



Figs 31-41. *Oxystigma caerulans* sp. n.: (31) anal appendages, male paratype, dorsal view; — (32) same of male holotype, left lateral view; — (33) penis, paratype, ventral view; — (34) head, holotype, dorsal view; — (35) prothorax, holotype, dorsal view; — (36) pterothorax, holotype; — (37) meseptisterna, male paratype, dorsal view; — (38) head, female allotype, dorsal view; — (39) prothorax, allotype, dorsal view; — (40) last abdominal segments with ovipositor, allotype, left lateral view; — (41) same, ventral view.

complete maturity. Variability in wing venation: Fore wings with 20-23 postnodal crossveins; origin of IR_2 between twelfth and fifteenth postnodal; R_3 between ninth and eleventh postnodal (or slightly more distally); IR_3 may branch off from prior to the sixth postnodal to after the seventh. Hind wings with 15-19

postnodals; origin of IR_2 between after the ninth and the twelfth postnodal; R_3 between after the fifth and the ninth, and IR_3 from after the fourth to after the sixth postnodal. Cross-veins after the stigma in the costal space 7-10, in all wings.

Measurements (mm). — Abdomen (excluding anal appendages) 37.5-40; hind wing 25-26.5.

Female (allotype). — Labium and rear of head pale yellowish; base of mandibles, and inferior half of genae, pale brown; face and antennae dark brown. Top of head black with light ochreous marks, as in Figure 38. — Prothorax brown varied with pale green on the anterior and median lobes, margin of the posterior lobe creamy (Fig. 39). Pterothorax pale green with dark brown, somewhat diffuse bands, which are arranged as in the male. Black is only the broad stripe along the middorsal carina. Legs brown with a faintly indicated dark ring in the distal third of each femur. Wings slightly yellowish; pterostigma brown, covering two and a half cells. 7-9 cross-veins distally of the stigma. Fore wings with 19, hind wings with 17 (16) postnodals. Origin of IR_2 before the twelfth postnodal in the fore wings, at the tenth in the hind wings. R_3 branches off at the ninth postnodal in both fore wings, between the seventh and the eighth in the hind wings. In the fore wings, IR_3 originates before the sixth (at the fifth) postnodal, in both hind wings at the fifth. — Abdominal segments 3-7 with a conspicuous, pale greenish or yellowish basal ring. Segments 1-3 predominantly pale ochreous laterally, dark brown to black dorsally. Segment 2 with a yellowish dorsomedian line in the basal half; segments 4-6 dorsally also dark brown to black, laterally brown in the first half after the basal ring, and pale in the second half prior to the broad, black distal band. Segment 7 chiefly brown laterally; segment 8 lighter brown laterally, darker dorsally; segment 9 bright ochreous laterally, dark brown dorsally; segment 10 similar. Cerci dark; ovipositor as in Figures 40-41.

Measurements (mm). — Total length 40.5; abdomen 32.5; hind wing 25.5; pterostigma, costal side, front wing 0.5 mm, radial side 1.7.

In one of the paratype females the face is darker, the hind lobe of the prothorax more quadrate, with slightly concave lateral borders. Wings smoky. Fore wings with 22 (20) postnodals, hind wings with 18 (16) postnodals. — Abdominal segments 8-10, especially the latter, pruinescent. Ovipositor a trifle longer than in the allotype.

Measurements (mm). — Total length 40.5; abdomen 33.5; hind wing 26.

The second paratype female is very much like the allotype. Wings slightly yellowish. 18 (20) postnodals in the fore wings, 17 (15) in the hind wings.

Measurements (mm). — Total length 41; abdomen 33; hind wing 26.5.

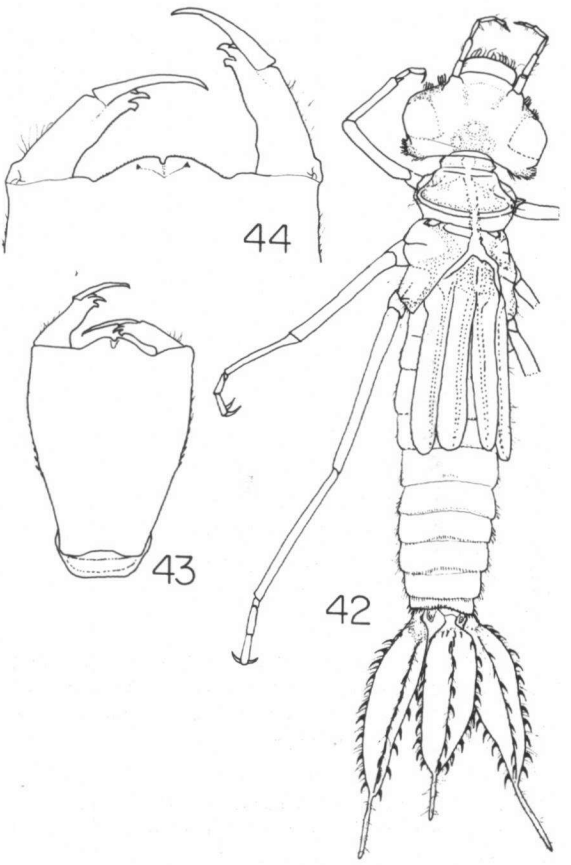
Larva. — This specimen was not reared, but the exuviae (male, ultimate instar) were detected after a close inspection of a stone at the margin of the creek where a newly emerged male *Oxystigma caerulans* sp. n. had been taken in the moment of its first flight.

Description. — Head broadly triangular; occipital margin almost straight. Labium reaching backwards to the hind border of the first coxae. — Prothorax rounded. Wing pads reaching to the base of abdominal segment 5. Legs not

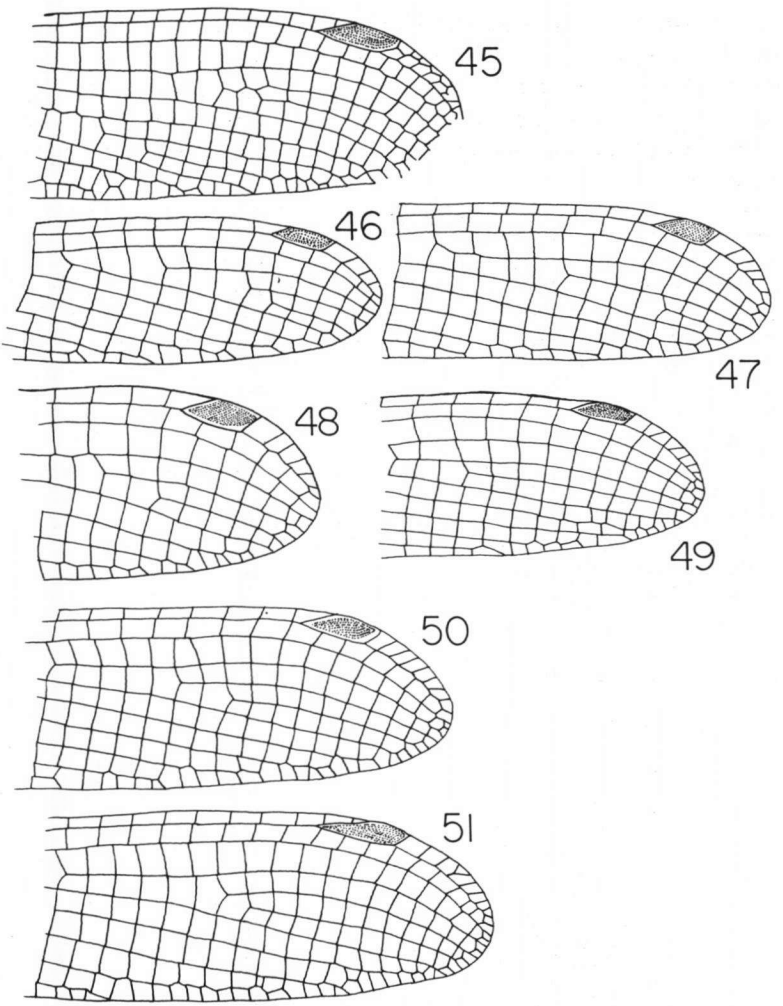
depressed, with feebly indicated ventral carinae. — Abdomen without lateral or dorsal spines. Gonapophyses hardly visible as a pair of very low tubercles. Segment 10 lacking any apical excision. Lateral caudal gills swollen, triangular in cross-section, with strong hooks along all carinae; median gill quadrangular, swollen, and with a row of hooks along the four edges. All gills ending in a long terminal filament.

Measurement (mm). — Total length (including gills with filament) 19; lateral gills (incl. filament) 6; abdomen (excl. gills) 7; hind femur 4.

Remarks. — *Oxystigma caerulans* sp. n. is larger than most specimens of any of the described species. The male superior anal appendages are peculiar in having a dorso-internal submedian hook, or tubercle. — The larva seems to differ from that of *O. cyanofrons* Williamson described by GEIJSKES (1943; sub *O. petiolatum;* see GEIJSKES, 1976), principally by the almost straight



Figs 42-44. *Oxystigma caerulans* sp. n., last instar exuviae (♂): (42) exuviae, dorsal view; — (43) labium, ventral view; — (44) anterior part of labium, dorsal view.



Figs 45-51. Tip of right front wing in some neotropical Megapodagrionidae: (45) *Dimeragrion secundum* (holotype); — (46) *Heteragrion romani* (holotype); — (47) *H. silvarum* (holotype); — (48) *H. silvarum* (female paratype); — (49) *H. speciosum* (holotype); — (50) *H. pemon* sp. n. (paratype); — (51) *Oxystigma caerulans* sp. n. (male paratype).

occipital margin, as well as the absence of any color pattern. — The adults of *O. caerulans* sp. n. were common along a black ("red") water creek in the forest. It was the only megapodagrionid seen. Other species collected at the same place are: *Hetaerina caia* Drury ssp., *Iridictyon myersi* Needham & Fisher, *Argia* sp., *Progomphus racenisi* De Marmels, *Aeshna cornigera planaltica* Calvert, *Racenaeschna angustistrigis* Calvert, and an undescribed species of *Macrothemis* Hagen.

ACKNOWLEDGEMENTS

I like to express my sincere thanks to Dr R.J. SCHUH (American Museum of Natural History, New York, U.S.A.) for the loan of the type specimens of *Dimeragrion secundum* Needham. To Dr P.I. PERSSON (Swedish Museum of Natural History, Stockholm, Sweden) I am very much indebted for the loan of the Sjöstedtian types of *Heteragrion romani, H. silvarum* and *H. speciosum.*

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